

AMENDMENTS TO THE CLAIMSListing of claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1 (Cancelled).

Claim 2 (Currently Amended) A communication system comprising:

a base station device having transmission means for carrying out communication of a down link to a communication terminal device by using a multi-carrier signal having data dispersed to a plurality of subcarriers for transmission, and receiving means for receiving ~~the~~ a multi-carrier signal having data dispersed to ~~the~~ a plurality of subcarriers or a single-carrier signal transmitted from the communication terminal device and demodulating the data thereof;

a first communication terminal device having transmission means for carrying out ~~the~~ communication of an up link to the base station device by using ~~the~~ a multi-carrier signal having data dispersed to ~~the~~ a plurality of subcarriers for transmission, and receiving means for receiving the multi-carrier signal having the data dispersed to the plurality of subcarriers transmitted from the base station device and demodulating received data; and

a second communication terminal device having transmission means for carrying out ~~the~~ communication of ~~the~~ an up link to the base station device by using ~~the~~ a single-

carrier signal, and receiving means for receiving the multi-carrier signal having the data dispersed to the plurality of subcarriers transmitted from the base station device and demodulating the received data, wherein

the base station device further includes discrimination means for discriminating whether a received signal is the multi-carrier signal ~~using m units of subcarriers and~~ or the single-carrier signal, such that demodulation processing conforming to a the received signal is carried out by the receiving means based upon a result of discrimination of the discrimination means, and including error detecting means for performing error detection on the received signal ~~after~~ before the discriminating operation.

Claim 3 (Previously Presented) The communication system as claimed in claim 2, wherein the second communication terminal device further includes carrier control means for controlling the transmission means to carry out the communication of the up link to the base station device by using a predetermined subcarrier of the plurality of subcarriers.

Claim 4 (Previously Presented) The communication system as claimed in claim 2, wherein

the base station device further includes timing control means for controlling the transmission means to carry out the communication of the down link at predetermined slot timing within a frame having a plurality of slots;

the first communication terminal device further includes transmission control means for controlling the transmission means to carry out the communication of the up link at a first slot timing set within the frame; and

the second communication terminal device further includes timing control means for controlling the transmission means to carry out the communication of the up link at second slot timing set within the frame.

Claims 5-6 (Cancelled).

Claim 7 (Currently Amended) A communication system comprising:

a base station device having transmission means for carrying out communication of a down link to a communication terminal device by using a multi-carrier signal having data dispersed to  $m$  units of subcarriers for transmission, and receiving means for receiving ~~the~~ a multi-carrier signal having ~~the~~ data dispersed to  $m$  or  $j$  units of subcarriers transmitted from the communication terminal device and demodulating the data thereof;

a first communication terminal device having transmission means for carrying out communication of an up link to the base station device by using ~~the~~ a multi-carrier signal having ~~the~~ data dispersed to  $m$  units of subcarriers for transmission, and receiving means for receiving the multi-carrier signal having the data dispersed to  $m$  units of subcarriers transmitted from the base station device and demodulating the received data;

and

a second communication terminal device having transmission means for carrying out communication of ~~the~~ an up link to the base station device by using ~~the~~ a multi-carrier signal having ~~the~~ data dispersed to  $j$  units of subcarriers for transmission, and receiving means for receiving the multi-carrier signal having the data dispersed to  $m$  units of subcarriers transmitted from the base station device and demodulating received data, wherein

$m$  is an integer not smaller than 2;

$j$  is an integer smaller than  $m$ ; and

the base station device further includes discrimination means for discriminating a received signal between the multi-carrier signal using  $m$  units of subcarriers ~~and~~ or the multi-carrier signal using  $j$  units of subcarriers, such that demodulation processing conforming to ~~a~~ the received signal is carried out by the receiving means based upon a result of discrimination of the discrimination means, and including error detecting means for detecting errors in the received signal ~~after~~ before the discriminating operation.

Claim 8 (Previously Presented) The communication system as claimed in claim 7, wherein the second communication terminal device further includes carrier control means for controlling the transmission means to carry out the communication of the up link by using predetermined  $j$  units of subcarriers of the  $m$  units of subcarriers.

Claim 9 (Previously Presented) The communication system as claimed in claim 7, wherein

the base station device further includes timing control means for controlling the transmission means to carry out the communication of the down link at a predetermined slot timing within a frame having a plurality of slots;

the first communication terminal device further includes timing control means for controlling the transmission means to carry out the communication of the up link at first slot timing set within the frame; and

the second communication terminal device further includes timing control means for controlling the transmission means so as to carry out the communication of the up link at second slot timing set within the frame.

Claim 10 (Cancelled).

Claim 11 (Currently Amended) A communication system comprising:

a base station device having transmission means for carrying out communication of a down link to a communication terminal device by using a multi-carrier signal having data dispersed to  $m$  units of subcarriers for transmission, and receiving means for receiving the a multi-carrier signal having the data dispersed to  $m$  or  $j$  units of subcarriers or a single-carrier signal transmitted from the communication terminal device and demodulating the data thereof;

a first communication terminal device having transmission

means for carrying out ~~the~~ communication of an up link to the base station device by using ~~the~~ a multi-carrier signal having ~~the~~ data dispersed to  $m$  units of subcarriers for transmission, and receiving means for receiving the multi-carrier signal having the data dispersed to  $m$  units of subcarriers transmitted from the base station device and demodulating received data;

a second communication terminal device having transmission means for carrying out communication of ~~the~~ an up link to the base station device by using ~~the~~ a multi-carrier signal having data dispersed to  $j$  units of subcarriers for transmission, and receiving means for receiving the multi-carrier signal having the data dispersed to  $m$  units of subcarriers transmitted from the base station device and demodulating the received data; and

a third communication terminal device having transmission means for carrying out ~~the~~ communication of ~~the~~ an up link to the base station device by using ~~the~~ a single-carrier, and receiving means for receiving the multi-carrier signal having the data dispersed to a plurality of subcarriers transmitted from the base station device and demodulating the received data, wherein

$m$  is an integer not smaller than 2;

$j$  is an integer smaller than  $m$ ; and

the base station device further includes discrimination means for discriminating whether a received signal is the multi-carrier signal using  $m$  units of subcarriers ~~and~~ or the multi-carrier signal using  $j$  units of subcarriers, such that

demodulation processing conforming to a the received signal is carried out by the receiving means based upon a result of discrimination of the discrimination means, and including error detecting means for detecting errors in the received signal ~~after~~ before the discriminating operation.

Claim 12 (Previously Presented) The communication system as claimed in claim 11, wherein the second communication terminal device further includes carrier control means for controlling the transmission means to carry out the communication of the up link by using predetermined j units of subcarriers of the m units of subcarriers, and

the third communication terminal device further includes carrier control means for controlling the transmission means to carry out communication of the up link by using a predetermined subcarrier of the m units of subcarriers.

Claim 13 (Previously Presented) The communication system as claimed in claim 11, wherein the base station device further includes timing control means for controlling the transmission means to carry out the communication of the down link at predetermined slot timing within a frame having a plurality of slots; and

each of the first, second, and third communication terminal devices further includes respective timing control means for controlling each respective transmission means to carry out the communication of the up link at each predetermined slot timing allocated within the frame having

the plurality of slots.

Claims 14-15 (Cancelled).

Claim 16 (Currently Amended) A base station device for carrying out bidirectional data communication with a communication terminal device, the base station device comprising:

transmission means for carrying out communication of a down link to the communication terminal device by using a multi-carrier signal having data dispersed to a plurality of subcarriers for transmission;

receiving means for receiving ~~the~~ a multi-carrier signal having data dispersed to ~~the~~ a plurality of subcarriers or a single-carrier signal transmitted from the communication terminal device and for demodulating data thereof; and

discrimination means for discriminating whether a received signal is the multi-carrier signal ~~using~~ m ~~subcarriers~~ or the single-carrier signal, such that demodulation processing conforming to the received signal is carried out by the receiving means based upon a result of discrimination of the discrimination means, and including error detecting means for detecting errors in the received signal ~~after~~ before the discriminating operation.

Claim 17 (Previously Presented) The base station device as claimed in claim 16, further comprising receiving control means for controlling the receiving means to receive the



single-carrier signal to which a predetermined subcarrier of the plurality of subcarriers is allocated and to demodulate the data thereof.

Claim 18 (Previously Presented) The base station device as claimed in claim 16, further comprising receiving control means for controlling the receiving means to receive the multi-carrier signal at a first slot timing set within a frame having a plurality of slots and demodulate the data thereof, and to receive the single-carrier signal at a second slot timing set within the frame and demodulate the data thereof.

Claims 19-20 (Cancelled).

Claim 21 (Currently Amended) A base station device for carrying out bidirectional data communication with a communication terminal device, the base station device comprising:

transmission means for carrying out communication of a down link to the communication terminal device by using a multi-carrier signal having data dispersed to  $m$  units of subcarriers for transmission; and

receiving means for receiving ~~the~~ a multi-carrier signal having data dispersed to  $m$  or  $j$  units of subcarriers transmitted from the communication terminal device and for demodulating the data thereof; and

discrimination means for discriminating whether a received signal is the multi-carrier signal using  $m$  units of

subcarriers or the multi-carrier signal using  $j$  units of subcarriers, that demodulation processing conforming to a the received signal is carried out by the receiving means based upon a result of discrimination of the discrimination means, wherein

$m$  is an integer not smaller than 2; and

$j$  is an integer smaller than  $m$ ,

and including error detecting means for detecting errors in the received signal ~~after~~ before the discriminating operation.

Claim 22 (Previously Presented) The base station device as claimed in claim 21, further comprising receiving control means for controlling the receiving means to receive the multi-carrier signal to which predetermined  $j$  units of subcarriers of  $m$  units of subcarriers are allocated and to demodulate the data thereof.

Claim 23 (Previously Presented) The base station device as claimed in claim 21, further comprising receiving control means for controlling the receiving means to receive the multi-carrier signal transmitted with the data dispersed to  $m$  units of subcarriers at first slot timing set within a frame having a plurality of slots and to demodulate the data thereof, and to receive the multi-carrier signal transmitted with the data dispersed to  $j$  units of subcarriers at a second slot timing set within the frame and to demodulate the data thereof.

Claim 24 (Cancelled).

Claim 25 (Previously Presented) The base station device as claimed in claim 21, wherein the receiving means further includes a filter having a passband width corresponding to the number of subcarriers of the multi-carrier signal to be demodulated.

Claim 26 (Previously Presented) The base station device as claimed in claim 21, wherein the receiving means further includes a filter having a first passband width and the filter having a second passband width broader than the first passband width, to receive the multi-carrier signal transmitted through the filter of the first passband width with the data dispersed to  $j$  units of subcarriers and demodulate the data thereof, and to receive the multi-carrier signal transmitted through the filter of the second passband width with the data dispersed to  $m$  units of subcarriers and demodulate the data thereof.

Claim 27 (Currently Amended) A base station device for carrying out bidirectional data communication with a communication terminal device, the base station device comprising:

transmission means for carrying out communication of a down link to the communication terminal device by using a multi-carrier signal having data dispersed to  $m$  units of subcarriers for transmission;

receiving means for receiving ~~the~~ a multi-carrier signal having the data dispersed to m or j units of subcarriers or for receiving a single-carrier signal transmitted from the communication terminal device and for demodulating the data thereof; and

discrimination means for discriminating a received signal among the multi-carrier signal using m units of subcarriers, or the multi-carrier signal using only j units of subcarriers, or the single-carrier signal, such that demodulation processing conforming to ~~a~~ the received signal is carried out by the receiving means based upon a result of discrimination of the discrimination means, wherein

m is an integer not smaller than 2; and

j is an integer smaller than m,

and including error detecting means for detecting errors in the received signal ~~after~~ before the discriminating operation.

Claim 28 (Previously Presented) The base station device as claimed in claim 27, further comprising receiving control means for controlling the receiving means to receive the multi-carrier signal to which specified j units of subcarriers are allocated or to receive the single-carrier signal to which a predetermined subcarrier is allocated and to demodulate the data thereof.

Claim 29 (Previously Presented) The base station device as claimed in claim 27, further comprising receiving control

means for controlling the receiving means to receive the multi-carrier signal transmitted with the data dispersed to  $m$  units of subcarriers at a first slot timing set within a frame having a plurality of slots and demodulate the data thereof, to receive the multi-carrier signal transmitted with the data dispersed to  $j$  units of subcarriers, or to receive the single-carrier signal at second slot timing set within the frame and to demodulate the data thereof.

Claim 30 (Cancelled).

Claim 31 (Previously Presented) The base station device as claimed in claim 27, wherein the receiving means further includes a filter having a passband width corresponding to the number of subcarriers to be demodulated, to decode data from the received signal obtained through the filter.

Claim 32 (Previously Presented) The base station device as claimed in claim 27, wherein the receiving means further includes a filter having a first passband width and the filter having a second passband width broader than the first passband width, so as to receive the multi-carrier signal transmitted through the filter of the first passband width with the data dispersed to  $j$  units of subcarriers or the single-carrier signal and demodulate the data thereof, and to receive the multi-carrier signal transmitted through the filter of the second passband width with the data dispersed to  $m$  units of subcarriers and demodulate the data thereof.

Claims 33-37 (Cancelled).

Claim 38 (Currently Amended) A communication method for carrying out bidirectional communication with a base station device, the method comprising:

carrying out communication of a down link from the base station device to a communication terminal device by using a multi-carrier signal having data dispersed to a plurality of subcarriers for transmission; and

carrying out communication of an up link from the communication terminal device to the base station device by using ~~the~~ a multi-carrier signal having data dispersed to ~~the~~ a plurality of subcarriers for transmission or by using a single-carrier signal, wherein

at the base station device the multi-carrier signal ~~using m units of subcarriers~~ and the single-carrier signal are discriminated between such that demodulation processing conforming to a received signal is carried out based upon a result of discrimination, and including error detecting means for detecting errors in the received signal before carrying out the discrimination operation.

Claim 39 (Previously Presented) The communication method as claimed in claim 38, wherein the communication of the up link to the base station device is carried out by using a predetermined subcarrier of the plurality of subcarriers.

Claim 40 (Previously Presented) The communication method as claimed in claim 38, wherein communication between the base station device and the communication terminal device is carried out at a slot timing set within a frame having a plurality of slots, and

the communication of the up link from the communication terminal device to the base station device is carried out by using the multi-carrier signal at a first slot timing set within the frame and by using the single-carrier signal at a second slot timing set within the frame.

Claims 41-42 (Cancelled).

Claim 43 (Currently Amended) A communication method for carrying out bidirectional communication with a base station device, the method comprising:

carrying out communication of a down link from the base station device to a communication terminal device by using multi-carrier signal having data dispersed to  $m$  units of subcarriers for transmission;

carrying out communication of an up link from the communication terminal device to the base station device by using ~~the~~ a multi-carrier signal having ~~the~~ data dispersed to  $j$  units of subcarriers for transmission or ~~the~~ a multi-carrier signal having ~~the~~ data dispersed to  $m$  units of subcarriers, wherein

$m$  is an integer not smaller than 2;

$j$  is an integer smaller than  $m$ ; and

on the side of the base station device the multi-carrier signal using  $m$  units of subcarriers and the multi-carrier signal using  $j$  units of subcarriers are discriminated between such that demodulation processing conforming to a received signal is carried out based upon a result of discrimination; and

performing error detection ~~after~~ before performing discrimination.

Claim 44 (Previously Presented) The communication method as claimed in claim 43, wherein communication between the base station device and the communication terminal device is carried out at a slot timing set within a frame having a plurality of slots, and

communication of the up link from the communication terminal device to the base station device is carried out in a slot allocated only to the multi-carrier signal having the data dispersed to  $j$  units of subcarriers for transmission.

Claim 45 (Previously Presented) The communication method as claimed in claim 43, wherein the communication of the up link from the communication terminal device to the base station device is carried out by using the multi-carrier signal having data dispersed to  $m$  units of subcarriers at first slot timing set within a frame and by using the multi-carrier signal having data dispersed to  $j$  units of subcarriers at a second slot timing set within the frame.



Claims 46-47 (Cancelled).

Claim 48 (Currently Amended) A communication method for carrying out bidirectional communication with a base station device, the method comprising:

carrying out communication of a down link from the base station device to a communication terminal device by using a multi-carrier signal having data dispersed to  $m$  units of subcarriers for transmission;

carrying out the communication of an up link from the communication terminal device to the base station device by using ~~the~~ a multi-carrier signal having the data dispersed to  $m$  units of subcarriers for transmission, ~~the~~ a multi-carrier signal having the data dispersed to  $j$  units of subcarriers for transmission or a single-carrier signal, wherein

$m$  is an integer not smaller than 2;

$j$  is an integer smaller than  $m$ ; and

on a side of the base station device the multi-carrier signal using  $m$  units of subcarriers and the multi-carrier signal using  $j$  units of subcarriers are discriminated between such that demodulation processing conforming to a received signal is carried out based upon a result of discrimination; and

performing error detection ~~after~~ before performing discrimination.

Claim 49 (Previously Presented) The communication method as claimed in claim 48, wherein communication between the base

station device and the communication terminal device is carried out at slot timing set within a frame cycle, and

communication of the up link from the communication terminal device to the base station device is carried out in a slot allocated only to the multi-carrier signal having the data dispersed to  $j$  units of subcarriers for transmission or the single-carrier signal.

Claim 50 (Previously Presented) The communication method as claimed in claim 48, wherein the communication of the up link from the communication terminal device to the base station device is carried out by using the multi-carrier signal having the data dispersed to  $m$  units of subcarriers at a first slot timing set within a frame and by using the multi-carrier signal having the data dispersed to  $j$  units of subcarriers or the single-carrier signal at second slot timing set within the frame cycle.

Claim 51 (Cancelled).